

What is claimed is:

1. An exhaust gas purifying system comprising a filter provided in an exhaust passage of an internal combustion engine for accumulating particulate matters, an oxidation catalyst provided on the upstream side of said filter, an exhaust throttle valve provided on the upstream side of said oxidation catalyst or on the downstream side of said filter, a first exhaust temperature sensor provided at the inlet of said oxidation catalyst, a second exhaust temperature sensor provided between said oxidation catalyst and said filter, and a control device for regeneration of said filter,

characterized in that said control device, upon the execution of control for regeneration of said filter, raises the temperature of the exhaust gas, by performing delay multi-step injection control in a state of closing said exhaust throttle valve, when the exhaust temperature detected by said first exhaust temperature sensor is a given first determining temperature or less; and controls to open said exhaust throttle valve in a stepwise or continuous manner after the exhaust temperature detected by said first exhaust temperature sensor has risen to a given second determining temperature or higher, in such a way that the exhaust temperature detected by said second exhaust temperature sensor rises to a given third determining temperature or higher.

2. The exhaust gas purifying system of claim 1, further characterized in that, after the exhaust temperature at the inlet of said oxidation catalyst has risen to said second determining temperature or higher, in the case where the exhaust temperature detected by said second exhaust temperature sensor rises to said third determining temperature or higher, said exhaust throttle valve is closed in a stepwise or continuous manner.

3. The exhaust gas purifying system of claim 1 or 2, further characterized in that, said exhaust throttle valve control and delay multi-step

injection control are released, in the case where the exhaust temperature detected by said second exhaust temperature sensor rises to or beyond a given fourth determining temperature which is higher than said third determining temperature, after the exhaust temperature at the inlet of said oxidation catalyst has risen to said second determining temperature or higher.

4. The exhaust gas purifying system of any one of claims 1 to 3, further characterized in that upon regeneration control for said DPF, the temperature of the exhaust gas is raised such that the exhaust temperature detected by said second exhaust temperature sensor rises to or beyond said third determining temperature, by performing delay multi-step injection control in a state of said exhaust throttle valve open, when the exhaust temperature detected by said first exhaust temperature sensor is higher than said first determining temperature.

5. The exhaust gas purifying system of any one of claims 1 to 4, further characterized in that said first determining temperature is a temperature higher than an activation temperature of said oxidation catalyst, and said second determining temperature is the activation temperature of said oxidation catalyst.

6. The exhaust gas purifying system of any one of claims 1 to 5, further characterized in that said third determining temperature is the exhaust temperature at which combustion of the particulate matters accumulated in said filter begins.

7. The exhaust gas purifying system of any one of claims 1 to 5, further characterized in that said filter is formed by a filter with an oxidation catalyst, a PM oxidation catalyst, or both an oxidation catalyst and a PM catalyst.